

key

Name: _____

Period: _____

CP Algebra 1 CD

Solving systems of equations word problems worksheet

For all problems, define variables, write the system of equations and solve for all variables.

1. A large pizza at Palanzio's Pizzeria costs \$6.80 plus \$0.90 for each topping. The cost of a large cheese pizza at Guido's Pizza is \$7.30 plus \$0.65 for each topping. How many toppings need to be added to a large cheese pizza from Palanzio's Pizzeria and Guido's Pizza in order for the pizzas to cost the same, not including tax?

2. Ms. Kitts works at a music store. Last week she sold 6 more than 3 times the number of CDs that she sold this week. Ms. Kitts sold a total of 110 CDs over the 2 weeks. Which system of equations can be used to find l , the number of CDs she sold last week, and t , the number of CDs she sold this week?

Let l = # CD's last week
 t = # CD's this week

$$\begin{aligned} l + t &= 110 \\ l &= 3t + 6 \end{aligned}$$

$$\begin{aligned} 3t + 6 + t &= 110 \\ 4t + 6 &= 110 \\ -6 &\quad -6 \\ \hline 4t &= 104 \\ t &= 26 \end{aligned}$$

$$\begin{aligned} l + 26 &= 110 \\ -26 &\quad -26 \\ \hline l &= 84 \end{aligned}$$

3. The length of a rectangle is equal to triple the width. Which system of equations can be used to find the dimensions of the rectangle if the perimeter is 86 centimeters?

Let l = length
 w = width

$$\begin{aligned} 86 &= 2l + 2w \\ l &= 3w \end{aligned}$$

$$\begin{aligned} 86 &= 2(3w) \\ 86 &= 6w + 2w \\ 86 &= 8w \\ 10.75 &= w \end{aligned}$$

The width is 10.75cm and the length is 32.25cm

4. At a restaurant the cost for a breakfast taco and a small glass of milk is \$2.10. The cost for 2 tacos and 3 small glasses of milk is \$5.15. Determine t , the cost of a taco, and m , the cost of a small glass of milk?

Let t = cost of taco
 c = cost of glass of milk

$$\begin{aligned} 1t + 1c &= 2.10 \\ 2t + 3c &= 5.15 \end{aligned}$$

5. The Frosty Ice-Cream Shop sells sundaes for \$2 and banana splits for \$3. On a hot summer day, the shop sold 8 more sundaes than banana splits and made \$156. How many of each did they sell?

Let s = # sundaes
 b = # banana splits

$$s = b + 8$$

$$2s + 3b = 156$$

6. Chase and Sara went to the candy store. Chase bought 5 pieces of fudge and 3 pieces of bubble gum for a total of \$5.70. Sara bought 2 pieces of fudge and 10 pieces of bubble gum for a total of \$3.60. Determine the cost of 1 piece of fudge, f , and 1 piece of bubble gum, g ?

Let f = cost of piece of fudge
 g = cost of piece of gum

$$5f + 3g = 5.70$$

$$2f + 10g = 3.60$$

7. The perimeter of a rectangular wooden deck is 90 feet. The deck's length, l , is 5 feet less than 4 times its width, w . Determine the dimensions, in feet, of the wooden deck?

Let l = length
 w = width

$$90 = 2l + 2w$$

$$l = 4w - 5$$

8. Marcos had 15 coins in nickels and quarters. He had 3 more quarters than nickels. He wrote a system of equations to represent this situation, letting x represent the number of nickels and y represent the number of quarters. Then he solved the system by graphing. What is the solution?

Let x = # nickels
 y = # quarters

$$x + y = 15$$

$$x + 3 = y$$

$$y = -x + 15$$

$$y = x + 3$$

$$x + 3 = -x + 15$$

He has 6 nickels and 9 quarters.

$$2x = 12$$

$$x = 6$$